

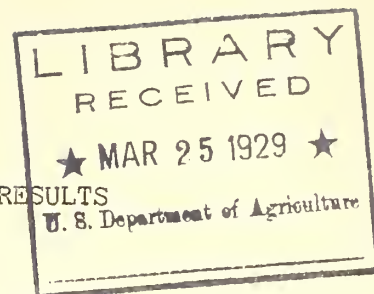
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THE BARBERRY ERADICATION CAMPAIGN

ORGANIZATION, PURPOSE, SCOPE OF THE PROBLEM, AND RESULTS



Organization

The Barberry Eradication Campaign was organized in 1918 by the United States Department of Agriculture, in cooperation with the thirteen States of Colorado, Illinois, Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin, and Wyoming.

Purpose

The purpose of the campaign is to reduce the loss of small grains from stem rust by eradicating all rust-susceptible barberry bushes from these thirteen upper Mississippi Valley States.

Black stem rust is the most destructive disease of small grains. It destroys millions of bushels of small grains each year. In years favorable to the epidemic spread of stem rust, the losses in the United States from this disease have been more than 200,000,000 bushels of small grains. Black stem rust is the greatest single hazard of the small-grain crop in these thirteen important grain-growing States.

Stem rust can not start in the spring in these northern States without the aid of the common barberry.

An average-sized barberry may produce more than 64,000,000,000 rust spores in a single season. Each of these spores may infect a grain or grass plant and produce a rust pustule containing 200,000 or more rust spores. In favorable weather the rust thus started will spread like wild fire.

A single barberry bush may start a local stem-rust epidemic which will spread and destroy the small grain of an entire community by harvest time.

The common barberry is known to be the greatest factor in the production and spread of black stem rust. Its removal from these thirteen important grain-growing States will mean a saving of millions of dollars to the farmers and the industries depending on grain growing.

Scope of the Problem

In the thirteen States of the eradication area there are 976 counties, containing approximately 957,000 square miles. Of this area, survey is required in the equivalent of 921 counties, in which there are approximately 750,000 square miles. The remainder is unsettled, timbered, mountainous, or sandy territory.

The total area contains 1,880,000 farms and many millions of city, town, and village properties, nearly all of which must be carefully inspected for barberries. Much of this tremendous area must be surveyed carefully on foot, and a large proportion of it must be gone over several times to insure that every barberry bush has been destroyed.

Before 1918, hundreds of thousands of barberry bushes had been planted as ornamentals or hedge plants in lawns, orchards, and groves over the entire eradication area.

So widespread was the distribution of this bush that some barberries have been found in practically every county in the eradication area except in a few of the western States, in which some of the counties still are sparsely settled.

Seeds had been spread from the planted bushes by birds and other agencies to groves, orchards, wooded pastures, fence rows, stream banks, irrigation ditches, native timber, and swampy areas. A mid-sized barberry bush produces about 22,000 seeds a year.

Bushes which have grown from bird-sown seeds have been found as far as six to ten miles from the original plantings. Many of these bird-sown bushes have borne fruit, and their seeds in turn have been spread to still greater distances from the original plantings.

Every square foot of territory in which a barberry may be growing must be surveyed. This involves the foot-scouting of many entire townships, and often of large portions of entire counties.

The survey of dense groves and woods, thickets, brier patches, tangled growths of weeds and vines, steep bluffs and river banks, and nearly impenetrable swamps makes complete eradication of the barberry bush a tremendous task.

The difficulties of eradication are increased by the delayed germination of barberry seeds. These seeds may lie in the ground for at least eight years before germinating. A second survey will be required in practically every one of the 921 counties needing a first survey, to insure the destruction of all barberry bushes. In many areas, particularly where viable seeds still lie in the ground, a third or fourth survey will be required.

Barberry bushes sprout readily and are very difficult to kill by digging. Therefore, they are killed by application of salt or kerosene, unless they are growing near valuable shrubs, which also might be killed by the chemical. Twenty pounds of salt, or one gallon of kerosene, applied to a bush having a clump of stems a foot across, will kill it.

The facts concerning the relation of the common barberry to the occurrence and spread of stem rust frequently are not fully understood by the people in the areas being surveyed. To secure the full understanding and complete sympathy of every citizen requires a tremendous amount of publicity.

Results

A total of 892 counties of the 921 counties needing survey has been covered by first survey.

Approximately 250 counties have been covered a second time.

A grand total of 17,587,276 common barberries has been located and destroyed in the barberry eradication area to December 31, 1928. This number includes 7,022,533 original bushes, 316,963 sprouting bushes, and 10,247,780 seedlings.

Stem rust is being controlled in these States by the eradication of the common barberry. In all of these States the removal of common barberry bushes has resulted in the disappearance of the severe local epidemics which they caused.

In the barberry eradication States east of the Mississippi River a reduction of these local rust centers has so reduced stem rust that losses have become almost negligible except near remaining barberries.

In the group of States west of the Mississippi River where grain fields are contiguous and the wind sweep is great, stem rust in general appears later and is less severe than in former years.

For the 13 States of the barberry eradication area the average loss of wheat in the 14-year period, from 1915 to 1928, inclusive, is estimated at 30,733,000 bushels per year. For the first 6 years of this period, from 1915 to 1920, inclusive, before a sufficient number of barberries were removed to materially affect the rust losses, the average annual losses were 50,420,000 bushels. In the 8-year period, from 1921 to 1928, the average annual losses were only 15,967,000 bushels, or less than one-third as much as in the first period.

These proofs of the effectiveness of barberry eradication have been obtained in spite of the fact that the barberry eradication campaign is not yet half completed.

GRAND SUMMARY BY STATES, ORIGINAL BUSHES, SPROUTING BUSHES, AND SEEDLINGS
DESTROYED, 1913-1928.

Data showing, by States, the number of bushes, sprouting bushes, and seedlings destroyed in all surveys in the barberry eradication campaign, April 1, 1913, to December 31, 1923.

| State | Numbers Destroyed | | | |
|--------------|-------------------|------------------|------------|------------|
| | Original Bushes | Sprouting Bushes | Seedlings | Total |
| Colorado | 25,493 | 6,997 | 15,080 | 47,575 |
| Illinois | 386,608 | 22,623 | 2,175,860 | 2,585,091 |
| Indiana | 200,190 | 19,895 | 22,315 | 242,400 |
| Iowa | 813,355 | 32,622 | 187,536 | 1,033,513 |
| Michigan | 710,111 | 3,862 | 4,483,497 | 5,197,470 |
| Minnesota | 797,877 | 52,326 | 59,733 | 909,936 |
| Montana | 12,261 | 5,264 | 19,888 | 37,413 |
| Nebraska | 99,199 | 16,879 | 16,656 | 132,734 |
| North Dakota | 23,398 | 2,483 | 823 | 26,704 |
| Ohio | 403,572 | 17,942 | 1,815,848 | 2,237,362 |
| South Dakota | 61,308 | 43,150 | 28,516 | 132,974 |
| Wisconsin | 3,485,137 | 92,424 | 1,421,975 | 4,999,536 |
| Wyoming | 4,019 | 496 | 53 | 4,568 |
| Total | 7,022,533 | 316,963 | 10,247,780 | 17,587,273 |

GRAND SUMMARY BY YEARS. ORIGINAL BUSHES, SPROUTING BUSHES, AND SEEDLINGS
DESTROYED, 1918 - 1928.

Data showing, by calendar years, the total numbers of original bushes, sprouting bushes, and seedlings destroyed in all surveys in the barberry eradication campaign, from April 1, 1918, to December 31, 1928.

| Year | Numbers Destroyed | | | |
|-------|-------------------|------------------|------------|------------|
| | Original Bushes | Sprouting Bushes | Seedlings | Total |
| 1918 | 1,690,475 | 1,996 | 500 | 1,692,971 |
| 1919 | 2,025,389 | 17,874 | 3,500 | 2,046,763 |
| 1920 | 518,315 | 33,148 | 1,500 | 552,963 |
| 1921 | 209,647 | 27,697 | 18,557 | 255,901 |
| 1922 | 729,721 | 63,883 | 69,733 | 863,337 |
| 1923 | 251,013 | 106,145 | 3,610,681 | 3,967,839 |
| 1924 | 388,632 | 21,850 | 844,485 | 1,254,967 |
| 1925 | 149,822 | 17,141 | 754,505 | 921,468 |
| 1926 | 723,580 | 16,504 | 2,064,805 | 2,804,889 |
| 1927 | 223,859 | 6,203 | 1,475,284 | 1,705,346 |
| 1928 | 112,080 | 4,522 | 1,404,230 | 1,520,832 |
| Total | 7,022,533 | 316,963 | 10,247,780 | 17,587,276 |

